

Archives of

Microbiology

Founded in 1930 as
Archiv für Mikrobiologie

Volume 137 1984

Managing Editors:

G. Drews · J. L. Ingraham · H.-G. Schlegel

Editorial Board

K. Altendorf, Osnabrück	E. N. Kondratieva, Moscow
A. Böck, München	D. J. Kushner, Ottawa
V. Braun, Tübingen	H. Larsen, Trondheim
N. G. Carr, Liverpool	B. Marrs, Annandale
G. Drews, Freiburg i. Br.	B. A. Melandri, Bologna
K. Esser, Bochum	N. Pfennig, Konstanz
S. Fukui, Kyoto	H. Sahm, Jülich
G. Gottschalk, Göttingen	M. R. J. Salton, New York
B. W. Holloway, Clayton Victoria	H.-G. Schlegel, Göttingen
R. Hüttner, Zürich	H. Stolp, Bayreuth
J. L. Ingraham, Davis	R. Thauer, Marburg
H. W. Jannasch, Woods Hole	H. G. Trüper, Bonn
D. P. Kelly, Coventry	P. M. Vignais, Grenoble



Springer International

Submission of a manuscript implies that the work described has not been published before (except in the form of an abstract or as part of a published lecture, review or thesis), that it is not under consideration for publication elsewhere, that its publication has been approved by all the authors and by the responsible authorities – tacitly or explicitly – in the laboratories where the work was carried out and that, if accepted, it will not be published elsewhere in the same form, in either the same or another language, without the consent of the copyright holders. By submitting a manuscript, the authors agree that the copyright for their article is transferred to the publisher if and when the article is accepted for publication. The copyright covers the exclusive rights to reproduce and distribute the article, including reprints, photographic reproductions, microform, electronic data-base, video-disk, or any other reproductions of similar nature, and translations.

Photographic reproduction, microform, electronic data-base, video-disk, or any other reproduction of text, figures, or tables from this journal is prohibited without permission obtained from the publisher.

The use of general descriptive names, trade names, trade marks, etc., in this publication, even if the former are not specifically identified, is not to be interpreted as exempt from the relevant protective laws and regulations.

While the advice and information in this journal is believed to be true and accurate at the date of going to press, neither the authors nor the editors nor the publisher can accept any legal responsibility for any errors or omissions that may be made. The publisher makes no warranty, express or implied, with respect to the material contained herein.

Special Regulations for the USA

Photocopies may be made for personal or internal use beyond that permitted by Section 107 or 108 of the U.S. Copyright Law, provided a fee is paid. This fee is \$ 0.20 per page or a minimum of \$ 1.00 if an article consists of less than five pages. Please pay this fee to the Copyright Clearance Center, Inc., 21 Congress Street, Salem, MA 01970, USA, stating the ISSN 0302-8933, volume, and first and last page numbers of each article copied.

The copyright owner's consent does not extend to copying for general distribution, for promotion, for creating new works, or for resale. Specific written permission must be obtained from the publisher for such copying.

Other Regulations

Authors of this journal can benefit from library and photocopy fees collected by VG WORT if certain conditions are met. If an author lives in the Federal Republic of Germany or in West Berlin it is recommended that he contact Verwertungsgesellschaft WORT, Abteilung Wissenschaft, Goethestraße 49, D-8000 München 2, for detailed information.

Springer-Verlag Berlin Heidelberg New York

Printed in Germany by Wiesbadener Graphische Betriebe GmbH, D-6200 Wiesbaden

© Springer-Verlag GmbH & Co. KG Berlin Heidelberg 1984

Contents

- Acknowledgements to referees 1
- Amrhein, N.**, see Schulz, A., et al. 121
- Aufderheide, M.**, see Poen, E., et al. 295
- Balkwill, D. L.**, see Nierzwicki-Bauer, S. A., et al. 97
- Bedu, S.**, see Jeanjean, R., et al. 215
- Belozerskaya, T. A.**, see Potapova, T. V., et al. 262
- Benemann, J. R.**, see Murry, M. A., et al. 194
- Bergman, B.**
Photorespiratory ammonium release by the cyanobacterium *Anabaena cylindrica* in the presence of methionine sulfoxime 21
- Betlach, M.**, see Hochstein, L. I. 74
- Böger, P.**, see Schrautemeier, B., et al. 14
- Böhme, H.**, see Schrautemeier, B., et al. 14
- Bollag, J.-M.**, see Leonowicz, A., et al. 89
- Bot, P. V. M.**, see Lubberding, H. J. 115
- Botsford, J. L.**
Osmoregulation in *Rhizobium meliloti*: inhibition of growth by salts 124
- Braster, M.**, see Verseveld, H. W. van, et al. 176
- Buckel, W.**, see Schweiger, G. 302
- Burnham, J. C., Collart, S. A., Daft, M. J.**
Myxococcal predation of the cyanobacterium *Phormidium luridum* in aqueous environments 220
- Calder, K. M. Lascelles, J.**
Analysis of cytoplasmic membrane from wild type and mutant *Paracoccus denitrificans* containing excess nitrate reductase protein and cytochrome b 226
- Cármenes, R. S., Rodicio, R., Moreno, F.**
L-Arabinose is not a gratuitous inducer of α -galactosidase from *Saccharomyces carlsbergensis* 10
- Chailakhian, L. M.**, see Potapova, T. V., et al. 262
- Chapman, D. J.**, see Howard, D. L., et al. 200
- Chesbro, W. R.**, see Verseveld, H. W. van, et al. 176
- Collart, S. A.**, see Burnham, J. C., et al. 220
- Collins, M. D., Costas, M., Owen, R. J.**
Isoprenoid quinone composition of representatives of the genus *Campylobacter* 168
- Collins, M. D., Shah, H. N.**
Fatty acid, menaquinone and polar lipid composition of *Rothia dentocariosiae* 247
- Costas, M.**, see Collins, M. D., et al. 168
- Cotter, D. A.**, see Jackson, D. P. 205
- Daft, M. J.**, see Burnham, J. C., et al. 220
- Dall'Olio, G.**, see Pancaldi, S., et al. 185
- Demain, A. L.**, see Johnson, E. A. 135
- Diekmann, H.**, see Poen, E., et al. 295
- Di Martino, C.**, see Fuggi, A., et al. 281
- Di Martino Rigano, V.**, see Fuggi, A., et al. 281
- Edgehill, R. U.**, see Leonowicz, A., et al. 89
- Elkan, G. H.**, see Stowers, M. D. 3
- Endl, J., Seidl, P. H., Fiedler, F., Schleifer, K. H.**
Determination of cell wall teichoic acid structure of staphylococci by rapid chemical and serological screening methods 272
- Engelmann, G.**, see Soeder, C. J. 85
- Fenoli, C., Ramirez, J. M.**
Simultaneous presence of two terminal oxidases in the respiratory system of dark aerobically grown *Rhodospirillum rubrum* 42
- Ferguson, S. J.**, see McEwan, A. G., et al. 344
- Fiechter, A.**, see Leisola, M. S. A., et al. 171
- Fiedler, F.**, see Endl, J., et al. 272
- Foucault, C.**, see Jeanjean, R., et al. 215
- Fowler, V. J.**, see Stackebrandt, E., et al. 366
- Fuggi, A., Vona, V., Di Martino Rigano, V.,**
- Di Martino, C., Martello, A., Rigano, C.**
Evidence for two transport systems for nitrate in the acidophilic thermophilic alga *Cyanidium caldarium* 281
- Geis, P. A., Wheeler, M. H., Szaniszlo, P. J.**
Pentaketide metabolites of melanin synthesis in the dematiaceous fungus *Wangiella dermatidis* 324
- Gerbling, K.-P., Steup, M., Latzko, E.**
Electrophoretic and chromatographic separation of two fructose-1,6-bisphosphatase forms from *Synechococcus leopoliensis* 109
- Grant, M. A., Hochstein, L. I.**
A dissimilatory nitrite reductase in *Paracoccus halodenitrificans* 79
- Gresshoff, P. M.**, see Mohapatra, S. S. 58
- Grogan, D. W.**
Interaction of respiration and luminescence in a common marine bacterium 159
- Guerrero, R., Mas, J., Pedrós-Alió, C.**
Buoyant density changes due to intracellular content of sulfur in *Chromatium warmingii* and *Chromatium vinosum* 350
- Gvozdyak, R. I.**, see Kozyrovska, N. A., et al. 338
- Hallenbeck, P. C.**, see Murry, M. A., et al. 194
- Hansen, T. A.**, see Stams, A. J. M. 329
- Hasegawa, S., Yanagishima, N.**
Selective inhibition of transition from sexual agglutination to zygote formation by ethyl N-phenylcarbamate in *Saccharomyces cerevisiae* 188
- Hochstein, L. I., Betlach, M., Kritikos, G.**
The effect of oxygen on denitrification during steady-state growth of *Paracoccus halodenitrificans* 74
- Hochstein, L. I.**, see Grant, M. A. 79
- Holzer, H.**, see Lenz, A.-G. 104

- Howard, D. L., Simoneit, B. R. T., Chapman, D. J.**
Triterpenoids from lipids of *Rhodomicromium vannielii* 200
- Hummel, W., Weiss, N., Kula, M. R.**
Isolation and characterization of a bacterium possessing L-phenylalanine dehydrogenase activity 47
- Hyman, M. R., Wood, P. M.**
Ethylene oxidation by *Nitrosomonas europaea* 155
- Imhoff, J. F., see Neutzing, O., et al.** 256
- Imhoff, J. F., see Stackebrandt, E., et al.** 366
- Jackson, D. P., Cotter, D. A.**
Expression of proteolytic enzymes during *Dictyostelium discoideum* spore germination 205
- Jackson, J. B., see McEwan, A. G., et al.** 344
- Jaenchen, R., Schönheit, P., Thauer, R. K.**
Studies on the biosynthesis of coenzyme F₄₃₀ in methanogenic bacteria 362
- Jarman, T. R., Pace, G. W.**
Energy requirements for microbial exopolysaccharide synthesis 231
- Jeanjean, R., Bedu, S., Rocca-Serra, J., Foucault, C.**
Phosphate uptake in the yeast *Candida tropicalis*: purification of phosphate-binding protein and investigations about its role in phosphate uptake 215
- Johnson, E. A., Demain, A. L.**
Probable involvement of sulphydryl groups and a metal as essential components of the cellulase of *Clostridium thermocellum* 135
- König, H., see Zabel, H. P., et al.** 308
- Kordyum, V. A., see Kozyrovskaia, N. A., et al.** 338
- Kozyrovskaia, N. A., Gvozdyak, R. I., Muras, V. A., Kordyum, V. A.**
Changes in properties of phytopathogenic bacteria effected by plasmid pRD 1 338
- Kritikos, G., see Hochstein, L. I.** 74
- Kritsky, M. S., see Potapova, T. V., et al.** 262
- Kroppenstedt, R. M., see Poen, E., et al.** 295
- Kula, M. R., see Hummel, W., et al.** 47
- Kusche, W. H., Trüper, H. G.**
Iron sulfur proteins of the purple sulfur bacterium *Ectothiorhodospire shaposhnikovii* 266
- Larkin, J. M., see Mezzino, M. J.** 139
- Larriba, G., see Leal, F., et al.** 209
- Lesclelles, J., see Calder, K. M.** 226
- Latzko, E., see Gerbling, K.-P. et al.** 109
- Leal, F., Ruiz-Herrera, J., Villanueva, J. R., Larriba, G.**
An examination of factors affecting the instability of *Saccharomyces cerevisiae* glucan synthetase in cell free extracts 209
- Leisola, M. S. A., Ulmer, D. C., Flechter, A.**
Factors affecting lignin degradation in lignocellulose by *Phanerochaete chrysosporium* 171
- Lenz, A.-G., Holzer, H.**
Effects of chloroquine on proteolytic processes and energy metabolism in yeast 104
- Leonowicz, A., Edgehill, R. U., Bollag, J.-M.**
The effect of pH on the transformation of syringic and vanillic acids by the laccases of *Rhizoctonia praticola* and *Trametes versicolor* 89
- Levina, N. N., see Potapova, T. V., et al.** 262
- Lowenberg, J. R.**
Sophorose induction of an intracellular b-glucosidase in *Trichoderma* 53
- Lubberding, H. J., Bot, P. V. M.**
The influence of temperature on glucose-6-phosphate dehydrogenase and 6-phosphogluconate dehydrogenase and the regulation of these enzymes in a mesophilic and a thermophilic cyanobacterium 115
- Maréchal, L. R.**
Transport and metabolism of trehalose in *Escherichia coli* and *Salmonella typhimurium* 70
- Martello, A., see Fuggi, A., et al.** 281
- Mas, J., see Guerrero, R., et al.** 350
- McEwan, A. G., Jackson, J. B., Ferguson, S. J.**
Rationalization of properties of nitrate reductases in *Rhodopseudomonas capsulata* 344
- Mezzino, M. J., Strohl, W. R., Larkin, J. M.**
Characterization of *Beggiaota alba* 139
- Mohapatra, S. S., Gresshoff, P. M.**
Carbon-nitrogen requirements for the expression of nitrogenase activity in cultured *Parasponia-Rhizobium* strain ANU289 58
- Moreno, F., see Cármenes, R. S., et al.** 10
- Müller, M., see Walther, P., et al.** 128
- Muras, V. A., see Kozyrovskaia, N. A., et al.** 338
- Murry, M. A., Hallenbeck, P. C., Benemann, J. R.**
Immunochemical evidence that nitrogenase is restricted to the heterocysts in *Anabaena cylindrica* 194
- Nethe-Jaenchen, R., Thauer, R. K.**
Growth yields and saturation constant of *Desulfovibrio vulgaris* in chemostat culture 236
- Neutzing, O., Imhoff, J. F., Trüper, H. G.**
Rhodopseudomonas adiatica sp. nov., a new species of the Rhodospirillaceae, dependent on reduced sulfur compounds 256
- Nierwinski-Bauer, S. A., Balkwill, D. L., Stevens, S. E., Jr.**
Morphology and ultrastructure of the cyanobacterium *Mastigocladus laminosus* growing under nitrogen-fixing conditions 97
- Owen, R. J., see Collins, M. D., et al.** 168
- Pace, G. W., see Jarman, T. R.** 231
- Pancaldi, S., Poli, F., Dall'Olio, G., Vannini, G. L.**
Morphological anomalies induced by Congo red in *Aspergillus niger* 185
- Pedrós-Alió, C., see Guerrero, R., et al.** 350
- Perry, J. J., see Zarilla, K. A.** 286
- Pezacka, E., Wood, H. G.**
The synthesis of acetyl-CoA by *Clostridium thermoaceticum*

- from carbon dioxide, hydrogen, coenzyme A and methyltetrahydrofolate 63
- Pfeiffer, P., Radler, F.**
Comparison of the killer toxin of several yeasts and the purification of a toxin of type K₂ 357
- Pfennig, N., see Tschech, A.** 163
- Poen, E., Aufderheide, M., Diekmann, H., Kroppenstedt, R. M.**
Toxonomic studies on filamentous bacteria from sewage belonging to the *Flavobacterium-Cytophaga* complex 295
- Poli, F., see Pancaldi, S., et al.** 185
- Potapova, T. V., Levina, N. N., Belozerskaya, T. A., Kritsky, M. S., Chailakhian, L. M.**
Investigation of electrophysiological responses of *Neurospora crassa* to blue light 262
- Radler, F., see Pfeiffer, P.** 357
- Rai, A. N., Rowell, P., Stewart, W. D. P.**
Evidence for an ammonium transport system in free-living and symbiotic cyanobacteria 241
- Ramirez, J. M., see Fenoll, C.** 42
- Reeves, C. D., Volcani, B. E.**
Role of silicon in diatom metabolism. Patterns of protein phosphorylation in *Cylindrotheca fusiformis* during recovery from silicon starvation 291
- Rigano, C., see Fuggi, A., et al.** 281
- Robinson, J. A., Tiedje, J. M.**
Competition between sulfate-reducing and methanogenic bacteria for H₂ under resting and growing conditions 26
- Rocca-Serra, J., see Jeanjean, R., et al.** 215
- Rodicio, R., see Cármenes, R. S., et al.** 10
- Rowell, P., see Rai, A. N., et al.** 241
- Ruiz-Herrera, J., see Leal, F., et al.** 209
- Schink, B.**
Clostridium magnum sp. nov., a non-autotrophic homoacetogenic bacterium 250
- Schink, B.**
Fermentation of 2,3-butanediol by *Pelobacter carbinolicus* sp. nov. and *Pelobacter propionicus* sp. nov., and evidence for propionate formation from C₂ compounds 33
- Schleifer, K. H., see Endl, J., et al.** 272
- Schmidt, A., see Tischner, R.** 151
- Schönheit, P., see Jaenchen, R., et al.** 362
- Schrautemeier, B., Böhme, H., Böger, P.**
In vitro studies on pathways and regulation of electron transport to nitrogenase with a cell-free extract from heterocysts of *Anabaena variabilis* 14
- Schubert, W., see Stackebrandt, E., et al.** 366
- Schulz, A., Sost, D., Amrhein, N.**
Insensitivity of 5-enopyruvylshikimic acid-3-phosphate synthase to glyphosate confers resistance to this herbicide in a strain of *Aerobacter aerogenes* 121
- Schweiger, G., Buckel, W.**
Studies on the dehydration of (*R*)-2-hydroxyglutarate in *Acidaminococcus fermentans*. A radical mechanism? 302
- Schweingruber, M. E., see Walther, P., et al.** 128
- Seidl, P. H., see Endl, J., et al.** 272
- Shah, H. N., see Collins, M. D.** 247
- Simoneit, B. R. T., see Howard, D. L., et al.** 200
- Soeder, C. J., Engelmann, G.**
Nickel requirement in *Chlorella emersonii* 85
- Sost, D., see Schulz, A., et al.** 121
- Stackebrandt, E., Fowler, V. J., Schubert, W., Imhoff, J. F.**
Towards a phylogeny of phototrophic purple sulfur bacteria – the genus *Ectothiorhodospira* 366
- Stams, A. J. M., Hansen, T. A.**
Fermentation of glutamate and other compounds by *Acidaminobacter hydrogenoformans* gen. nov. sp. nov., an obligate anaerobe isolated from black mud. Studies with pure cultures and mixed cultures with sulfate-reducing and methanogenic bacteria 329
- Steup, M., see Gerbling, K.-P., et al.** 109
- Stevens, S. E. Jr., see Nierwicki-Bauer, S. A., et al.** 97
- Stewart, W. D. P., see Rai, A. N., et al.** 241
- Stille, W., Trüper, H. G.**
Adenylsulfate reductase in some new sulfate-reducing bacteria 145
- Stouthamer, A. H., see Verseveld, H. W. van, et al.** 176
- Stowers, M. D., Elkan, G. H.**
Gluconate catabolism in cowpea rhizobia: evidence for a ketoglucuronate pathway 3
- Strohl, W. R., see Mezzino, M. J.** 139
- Szaniszlo, P. J., see Geis, P. A., et al.** 324
- Thauer, R. K., see Jaenchen, R., et al.** 362
- Thauer, R. K., see Nethe-Jaenchen, R.** 236
- Tiedje, J. M., see Robinson, J. A.** 26
- Tischner, R., Schmidt, A.**
Light mediated regulation of nitrate assimilation in *Synechococcus leopoliensis* 151
- Tomiyasu, I., Yano, I.**
Isonicotinic acid hydrazide induced changes and inhibition in mycolic acid synthesis in *Nocardia* and related taxa 316
- Trüper, H. G., see Kusche, W. H., et al.** 266
- Trüper, H. G., see Neutzling, O., et al.** 256
- Trüper, H. G., see Stille, W.** 145
- Tschech, A., Pfennig, N.**
Growth yield increase linked to caffete reduction in *Acetobacter woodii* 163
- Ulmer, D. C., see Leisola, M. S. A., et al.** 171
- Vannini, G. L., see Pancaldi, S., et al.** 185
- Verseveld, H. W. van, Chesbro, W. R., Braster, M., Stouthamer, A. H.**
Eubacteria have 3 growth modes keyed to nutrient flow. Consequences for the concept of maintenance and maximal growth yield 176

- Villanueva, J. R., see Leal, F., et al. 209
- Volcani, B. E., see Reeves, C. D. 291
- Vona, V., see Fuggi, A., et al. 281
- Walther, P., Müller, M., Schweingruber, M. E.
The ultrastructure of the cell surface and plasma membrane
of exponential and stationary phase cells of
Schizosaccharomyces pombe grown in different media 128
- Weiss, N., see Hummel, W., et al. 47
- Wheeler, M. H., see Geis, P. A., et al. 324
- Winter, J., see Zabel, H. P., et al. 308
- Wood, P. M., see Hyman, M. R. 155
- Wood, H. G., see Pezacka, E. 63
- Yanagishima, N., see Hasegawa, S. 188
- Yano, I., see Tomiyasu, I. 316
- Zabel, H. P., König, H., Winter, J.
Isolation and characterization of a new coccoid
methanogen, *Methanogenium tatum* spec. nov. from a
solfataric field on Mount Tatio 308
- Zarilla, K. A., Perry, J. J.
Thermoleophilum album gen. nov. and sp. nov., a
bacterium obligate for thermophily and *n*-alkane
substrates 286

